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THE PLANT DISEASE BULLETIN

Issued By

THE PLANT DISEASE SURVEY

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BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE PLANT DISEASE BULLETIN

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THE PLANT DISEASE SURVEY

Vol. V. August 15, 1921. Number 4.

Items of Interest in the August 1 Number of the Bulletin.

Attention is called to the following items of especial interest in the last number of the Plant Disease Bulletin (Vol. V, Number 3).

1. Downy mildew of wheat in Tennessee as reported by C. D. Sherbakoff.

2. The symptoms of the Leptosphaeria disease of wheat as reported by W. W. Mackie.

3. A special request for information on diseases of red clover.

4. Peanut rust reported for the first time in the United States. It occurred in Florida in 1918.

5. Explanation of cause of tip burn of potato and method of demonstrating waterpores.

6. Leaf blotch of potato collected in West Virginia.

7. First report of buckeye rot of tomato in Tennessee.

Important Survey Notes in the Present Number of the Bulletin.

1. Bacterial root and stalk rot of corn reported from Louisiana and Illinois.

2. The clover nematode (Tylenchus dipsaci) reported from several places in Oregon on strawberry and also found on alfalfa.

3. Reports on apple diseases from Oregon.

4. Potato wart found in new localities in the western Maryland district.

5. "Phoma" blight of cotton found in more places in Arkansas.

6. Reports on tobacco diseases from Virginia and North Carolina.

CEREALS

WHEAT

The total production of wheat this year as estimated by the Bureau of Markets and Crop Estimates, August 9, will be 757,000,000 bushels or 30,000,000 bushels less than last year - this in spite of the fact that the acreage is only slightly reduced, being 99.2% of that of 1920. The condition of spring wheat dropped from 80.8 to 66.6 during July, probably on account of drought and heat. This puts the condition of spring wheat at 6.6% below the ten year average. Winter wheat on July 1 was reported as 77.2% or 3.8% below the July 1 ten year average.

Stem rust caused by Puccinia graminis.

The following reports further indicate subnormal amounts of stem rust this year. The Minnesota report is probably representative of much of the spring wheat area.

Pennsylvania: Very rare this year. Wheat ripened early. (Thurston, July 15).
Maryland: Local. Loss slight. (Temple, July 1).
Illinois: Probably 5 or 10% on spring wheat, according to the United States Department of Agriculture scale for estimating rust. (Dungan, Aug. 1).
Minnesota: First reported on wheat about June 15, from Dakota County. Found on grasses on May 29. The rust came early and developed rapidly until the excessively hot weather in June checked its development and spread. Under favorable weather conditions there would have been a very severe epidemic since the rust started earlier than usual and was universally present. However, the hot weather not only checked the development and spread of the rust, but ripened the wheat prematurely so that the damage caused by rust was not as serious as that caused by heat. It is almost impossible to estimate the relative amount of damage done by the rust and by the heat. (Department of Plant Pathology, July 15).
Texas: Very prevalent, total loss 4%. (Taubenhaus, July 15).

Leaf rust caused by Puccinia triticina.

More reports are at hand showing the prevalence of leaf rust this season.

Pennsylvania: Unusually abundant, particularly in southeast section of the state. Loss considerable. (Thurston, July 15).
Maryland: Severe, causing at least 5% loss inyield and quality. (Temple, July 1).
Illinois: Universally distributed where spring wheat was grown in Illinois. It ran as high as from 25 to 40%, according to the United States Department of Agriculture scale for estimating rust. (Dungan, August 1).
Minnesota: First reported May 6 in Ramsey County. The leaf rust of wheat came early this year and was much more prevalent than it usually is. The degree of infection ranged from trace to 100%. As far as has been determined, no damage was done. This likely is partly due to the fact that

most of our spring wheat varieties are moderately resistant to the disease. Furthermore, the hot weather checked the development of the rust and probably prevented it from doing any damage. (Department of Plant Pathology, July 15).

South Dakota: Leaf rust of wheat was state wide and much more prevalent than usual. Eighty per cent of the fields showed 100% diseased plants. It first appeared at Brookings early in June. Some varieties were quite resistant, while others proved to be very susceptible to the rust. (Evans, August 11).

Scab caused by Gibberella saubinetii.

Apparently it has been too dry in the spring wheat states for heavy scab development this season with the result that less of it is showing than for a number of years. In spots where most rainfall occurred and where wheat followed after corn, some damage was reported.

Pennsylvania: Localized, very slight infections this year. (Thurston, July 15).

Maryland: Two fields were found with a loss of 20%, several with 10%, but the average is probably close to 3% for the state. Our surveys were run in part before all of the scab showed up. (Temple, July 1).

Illinois: In northern Illinois scab on spring wheat was very severe; running as high as 30% on the average. In central Illinois it was as bad as 12%. Little or no spring wheat is grown in southern Illinois. (Dungan, August 1).

Wisconsin: For the state as a whole infection was generally light, but in spots in the southern part of the state, where more rain occurred and where wheat followed corn there was some damage. (Johnson, August).

Minnesota: First reported June 28 from Nicollet County. Fairly generally distributed on the heads. Seedling blight fairly common, but often confused with other root rots. Infection fairly heavy. In some fields there was no appreciable loss and in others the loss was considerable. (Department of Plant Pathology, July 15).

South Dakota: Wheat scab was slight this year, being much less prevalent than for the past four years. The estimated loss for the state was 1-2% and occurred east of the Missouri River in most cases. It was first reported from Brookings in June. (Evans, August).

CORN

Judging from the recent figures issued by the Bureau of Markets and Crop Estimates (August 9, 1921), corn is a good crop this year. The acreage is 104.1% of that of last year and the condition 84.3% as compared with 86.7% on August 1, 1920. The crop was adversely affected by drought in many places during July, causing a falling off of the estimated production.

Smut caused by Ustilago zeae.

The reports that have been received to date show an unusual amount of corn smut in certain places. In parts of West Virginia and Virginia the disease is worse than usual and in South Dakota A. T. Evans reports as follows concerning the abundance of the disease:

"I wish to call your attention to the very severe epidemic of corn smut which we are having throughout the state. I have examined many fields and find none which do not have an over abundance. Many letters reach me weekly concerning this disease. Many farmers declare it has ruined crops."

Collaborators and others are requested to make as many observations as possible on corn smut this year and report the same to the survey. Accurate counts of percentage affected plants, ears, tassels, etc. are needed, and an effort should be made to determine how much actual loss the disease is causing.

Root rot caused by Gibberella saubinetii.

Ohio: This trouble is showing up about as usual at this time of the year. A number of fields have been observed where the corn was stunted and yellow and in addition several reports of such trouble have come in. The effects of this disease will be more in evidence as the season advances. (Clayton, July 15).

South Dakota: Corn root rot is appearing in quantity in various localities. (Evans, June 28).

The damage is slightly more than last year and will probably cause a 5% loss throughout the state. It is most prevalent in the central part of the state and was first reported at Brookings in May. (Evans August).

Bacterial root and stalk rot.

The disease of field corn reported by Rosen from Arkansas (Abstract in Phytopath. 11: 32. 1921) has now been reported in Illinois and Louisiana as shown by the following notes:

Illinois: A few days ago I received two samples of corn - one from Jackson County and one from Monroe County which showed typical symptoms of the bacterial stalk and root rot disease as described by Prof. H. R. Rosen, of Arkansas. I furnished him specimens of this disease from both of these counties and he has reported that without doubt it is the serious disease that occurs in Arkansas. It is the first occurrence of this trouble as far as I know in Illinois. Dr. Burrill, of course, did some work on the bacterial disease of field corn, but we are not able to learn definitely as to whether he was dealing with the same disease as the one that is showing up in these counties. (Dungan, August 1).

Louisiana: The bacterial stem rot of corn described by Rosen from Arkansas has been known in Louisiana since 1908. I saw it the first year that I was in Louisiana and have seen it to some extent nearly every year since. Some years it is very troublesome in some localities and other years it is of little importance. There was some complaint this year on some of the reclaimed soils in southern Louisiana. (Edgerton, August 11).

FRUITS

APPLE

Less than half of the apple production of last year is estimated by the

Department of Agriculture for the present season. A yield of 109,000,000 bushels is expected as compared with 244,000,000 of 1920.

Scab caused by Venturia ineaqualis.

Vermont: Much less than usual. Fair amount of leaf infection but it seems to have ceased to spread. (Lutman, July 15)

Texas: No record. Probably never occurs in Texas. (Taubenhaus, July 15).

Oregon: Scab negligible in Jackson County and absent from eastern Oregon. The Umpqua and Willamette Valleys and coast counties are showing unusually heavy infection, some orchards having lost much of the crop while in blossom; much defoliation was experienced in some sections. The losses will be more severe than in many years on account of spring weather favorable to scab and unfavorable to spraying for which many growers are not adequately equipped as yet. Not less than one-third of crop will be a loss in these two valleys. Hood River Valley will have not more than 2% loss from scab as fruit infections did not follow earlier and rather abundant foliage attack because of the practical absence of rain since petals fell. (Barss, July 1).

Fire blight caused by Bacillus amylovorus.

Vermont: Very common earlier in the season as twig blight, but has dried up like everything else. Did not seem to bother the pears but the apples, especially sweet varieties, were sprinkled very freely with dead twigs. (Lutman, July 15).

Texas: Very prevalent and serious, 3% loss. (Taubenhaus, July 15).

Oregon: Noticeable in many orchards in Jackson County according to Cate but damage will be far less than last season. None is reported in the Umpqua, Willamette, and Hood River Valleys up to this time. It is serious in some orchards in Wasco County. It is not reported from eastern Oregon sections as yet this year. (Barss, July 1).

Anthracnose caused by Neofabraea malicorticis.

Oregon: Present throughout western Oregon, slight damage in southern part. Losses in Umpqua Valley greatly reduced by August spray with Bordeaux last year. Willamette Valley losses in general are very severe and in the Hood River Valley lack of properly timed sprays has caused this disease to become the most serious trouble of apples in the section, according to Childs, who says orchard valuations have depreciated fully 10% due to the disease. This loss, however, is recoverable if attention is given to proper spraying. (Barss, July 1).

Powdery mildew caused by Podosphaera leucotricha - reported from Oregon: "Prevalent everywhere in the state but appears to gain headway only where scab sprays have been neglected. Jonathan variety the most susceptible." (Barss, July 1).

European canker caused by Nectria coccinea - reported from Oregon: "Reported again within state but not causing appreciable damage in general." (Barss, July 1).

Mushroom root rot caused by Armillaria mellea - reported from Oregon: "Present over western Oregon, but no worse than usual. Mostly on newly cleared land. In the Hood River Valley up to 5 or 10% losses of trees are reported in individual orchards but according to Childs not 1% of the total number of trees in this section are lost annually." (Barss, July 1).

PLUM

Brown rot caused by Sclerotinia cinerea - reported as common in New Jersey (Cook, August 1).

Shot-hole caused by Coccomyces prunophorae - reported from Ohio, where it has caused general and severe defoliation, especially on European varieties, according to Selby, who states that very little or no summer spraying has been done because of the loss of the crop due to freezing.

PEAR

Fire blight caused by Bacillus amylovorus.

Virginia: Especially prevalent in southwest portion but occurs to some extent wherever pears are found. (Fromme, August 1).

Kentucky: Twig blight very severe. (Valleau, August 1).

North Carolina: The most destructive disease of pears, practically prohibiting the growth of them in this state. Very common wherever pears are grown and being a source of infection to the apples. We have received a large number of complaints from orchard men all over the state relative to methods of control of this disease. The larger growers practice the cutting out of the blighted limbs but are rather lax in the use of disinfectants. (Foster, August 1).

South Carolina: Present on all trees. Damage probably 10%. Still greater loss due to fact that pear growing can hardly be made profitable. Prospective growers must stay out of the business. (Ludwig, August 1).

Ohio: There is hardly a tree in the state that is not seriously affected. Several cases have been observed where the blight obviously started on a pear tree and spread from there to an adjacent apple orchard. (Clayton, July 15)

Scab caused by Venturia pyrina - reported from South Carolina as causing slight damage.

Leafspot caused by Mycosphaerella sentina - reported from Virginia as very severe on specimens sent from York County.

STRAWBERRY

Leafspot caused by Mycosphaerella fragariae.

Reports from Vermont, Connecticut, Maryland, Illinois, Wisconsin, and Oregon indicate that leaf spot is causing little damage in those states.

Vermont: Much less common than generally. Much dry weather seems to have suppressed it to a large extent. (Lutman, July 1).

Maryland: Our growers are using mainly the more resistant varieties. (Temple, July 1).

Oregon: Present in practically all commercial plantings in Hood River Valley, but causing no appreciable injury according to Childs. Present also throughout western Oregon appearing much more abundantly in some sections than usual due, perhaps, to the long, cool, rainy spring conditions. In general the disease causes little damage. (Barss, July 1).

Powdery mildew caused by Sphaerotheca humuli.

Oregon: Childs reports powdery mildew on strawberry not as general as usual in the Hood River Valley though in a few rather large plantings the disease was quite severe. In one acreage a fourth of the fruit or 700 crates was put in special grade on account of powdery mildew. Not more than 2% of the Hood River crop was affected. Mildewed berries generally bring 25 to 50 cents less per crate than healthy fruit. One grower tried lime sulphur spray and succeeded in reducing the disease although some burning of foliage resulted. The disease was of little general importance in the Willamette Valley or southward as far as can be judged by reports. (Barss, July 1).

Nematode (Tylenchus dipsaci).

Oregon: Found doing some damage on strawberries in the Coast sections of Lane and Coos Counties and in Benton County. All badly infected fields in Lane County were destroyed last season and only a few patches now show infection. The disease was discovered in Coos County for the first time this spring. The extent is not known as yet. The same pest has been found recently on alfalfa at Hermiston. It also occurs on clover. (Barss, July 1).

Gray mold rot caused by Botrytis sp.

Maryland reports gray mold rot as prevalent and causing a loss of probably 4%. In other states it is not said to be causing damage in the field, but in Illinois it is more prevalent than usual on market berries, according to Anderson, and food products inspectors of the Bureau of Markets and Crop Estimates report its presence in shipments from several states, as shown in the following list:

Alabama: 5 cars, mostly slight amounts.
Arkansas: 37 cars, occasional to 40%, mostly 2-7%.
Delaware: 11 cars; occasional to 40%, mostly about 2-10%.
Florida: 1 car; 75-100%.
Kentucky: 5 cars; occasional to 25%.
Louisiana: 53 cars; occasional to 30%, mostly occasional to 5%.
Maryland: 10 cars; occasional to 45%, mostly occasional to 2%.
Mississippi: 3 cars; 2 occasional, 1 20%.
Missouri: 12 cars; occasional to 35%, mostly 7-17%.
New York: 4 cars; occasional to 35%.

North Carolina: 1 car; 12%.
Oregon: 1 car; 3%.
Tennessee: 49 cars: occasional to 30%, mostly occasional to 8%.
Texas: 1 car; occasional.
Virginia: 12 cars; occasional to 13%.
Washington: 1 car; 20%.
Unknown: 6 cars; occasional to 30%.

Rot caused by Rhizopus sp.

Maryland is the only state reporting losses in the field due to Rhizopus rot, although markets inspectors have found it in shipments from several states as follows:

Alabama: 2 cars; 10% and 20%.
Arkansas: 20 cars; occasional to 45%, mostly 4-17%.
Delaware: 5 cars; occasional to 45%.
Florida: 1 car; 75-100%.
Kentucky: 5 cars; 2-33%; mostly 2-12%.
Louisiana: 63 cars; occasional to 75%, mostly 2-15%.
Maryland: 8 cars; 7 cars occasional to 5%, one car 45%.
Missouri: 16 cars; occasional to 48%.
New York: 4 cars; occasional to 35%.
Tennessee: 29 cars, occasional to 30%.
Virginia: 6 cars; occasional to 9%, mostly occasional.
Washington: 1 car, some Rhizopus.
Unknown: 8 cars; occasional to 30%.

Maryland: Has always caused great loss with us, both before and after the berries have been picked, causing altogether about 10% loss. (Temple, July 1).

Oregon: Apparently not serious in Oregon, although some complaints of decay from an undetermined cause which might have been Rhizopus were received. Rhizopus is known to be present, however, to some extent in the state. (Barss, July 1).

Leaf scorch caused by Mollisia earliana - reported from Illinois: "Found for the first time in this state in University variety patch where it was present on a number of varieties obtained from a Michigan nursery. It was not found on Dunlap and other commercial varieties in the neighborhood." (Anderson, July 1).

Slime mold (Spumaria alba) - reported from Nebraska as causing considerable damage in a number of cases. (Goss, July 1).

A root-rot of unknown cause - reported from Maryland as follows: "Local - causing some loss. Has been found for the past seven years, but not much complaint has been made concerning it until this year." (Temple, July 1).

VEGETABLE AND FIELD CROPS

POTATO

Although the potato acreage is slightly larger than last year a total United States production of only 316,000,000 bushels, as compared with the 428,000,000 bushels of 1920 is predicted by the Bureau of Markets and Crop Estimates. The condition of the crop on August 1 was 65.8%, while on July 1 it was 83.4% and on August 1 of 1920 it was 87.0%. Of the factors bringing about this reduction, probably the hot dry weather is by far the most important.

Wart caused by Chrysophylyctis endobiotica.

Wart has been discovered within the last ten days in three new mining towns in western Maryland. It will be recalled that last year it was found at Eckart Mines, Mt. Savage, and Lord in that state. The newly discovered infestations, one of which is Lonaconing, are in the same general locality as these towns. The disease is also found recurring at Lord this year.

Late blight caused by Phytophthora infestans.

Late blight on the late crop has only been reported thus far this season from West Virginia, Maryland, and Pennsylvania.

In West Virginia it is prevalent in Tucker County, scattered in Randolph County, and a report of two affected gardens has been received from Fayette County. Aside from these cases in parts of the state where they have had considerable rain there is a marked absence of the disease.

In western Maryland and in Pennsylvania the potato wart field men have been finding some of the disease and Nixon in the latter state reported it well distributed in Somerset County on August 5.

The dry hot weather of this season has successfully held the disease in check in most places and is liable to suppress it to such an extent that it will not do serious damage this year.

Early blight caused by Macrosporium solani.

Reports that the disease has not been observed are at hand from South Carolina, Ohio, and Kentucky. Other reports, given below, show that early blight is not destructive in those particular states. The dry weather has doubtless been influential in holding the disease in check.

Virginia: Present at various points in the state, but not apparently causing any serious injury. Drought so severe that foliage diseases have not flourished. (Fromme, August 1).

North Carolina: Common on unsprayed potatoes but not considered serious as it comes as the crop is ready for harvesting. Found over the entire state. (Foster, August 1).

Mississippi: Early blight has not been reported as observed to as large an extent as last season. The season has been unusually dry in many parts of the state, and this no doubt is partially responsible for the disease being less severe. First reported from Hattiesburg on May 20. (Neal, August 1).

Louisiana: Present, but loss slight. (Edgerton, August 1).
South Dakota: Of slight importance this year, causing a slight loss for the state. First observed at Brookings in July. (Evans)

Mosaic (cause unknown).

Virginia: Traces found, but not severe. (Fromme, August 1).
Kentucky: Very prevalent and the cause of severe reduction in yield of early crop of cobblers. (Valleau, August 1).
North Carolina: The average infection in the early crop would probably be between 10 and 15%, but in some instances the infection going as high as 50%. Another disease growers have not recognized as specific and hence do not realize the importance of its control. This disease is being introduced every year through seed purchased from the north. (Foster, August 1).
Mississippi: Mosaic continues to be the dominant potato disease in the state. It occurred in about the same amount as last season. Bliss Triumph stock continues to develop a heavy percentage of infection. Observed and reported about the middle of May in practically all the trucking centers in southern Mississippi. (Neal, August 1).
Louisiana: Very common on Bliss Triumph causing very serious loss. Disease was particularly bad on potatoes grown from certified seed in the Alexandria district. Growers lost at least $15,000 by using this seed. Loss caused by this disease on Triumph variety all over state from 25-75%. (Edgerton, August 1).

Leaf roll (cause undetermined).

No reports of serious damage from leaf roll have been received. Potato wart field men working in Pennsylvania report it as almost universally present in the gardens that they are inspecting.

Kentucky: Common but much less serious than mosaic. (Valleau, August 1).
North Carolina: Common in the early eastern shore crop and also the crop grown in the mountains. Estimated damage to early crop about 5%. As a rule, this disease is not recognized by the average grower to be a specific disease and hence they have made no effort to rid their crop of it. (Foster, August 1).
Mississippi: Observed at Wiggins (Stone County) and also reported from Copiah County about June 1. This trouble is of minor importance as yet. (Neal, August 1).
Louisiana: Slight infection noticed in various parts of the state. Apparently of no economic importance as yet. (Edgerton, August 1).

Black leg caused by Bacillus atrosepticus or B. phytophthorus.

Reported from New Jersey this year (1% affected plants), North Carolina (very destructive to early crop on Eastern Shore, probably 6% plants affected), and Ohio (young sprouts severely affected in Scioto and Stark Counties).

Tip burn, hopper burn, and drouth injury.

The hot and dry weather of the present season has caused much tip burn and premature death of the vines in many places. Reports to this effect are at hand from Virginia, West Virginia, Ohio, South Dakota, and Nebraska, and it is doubtless true of many other states.

TOBACCO

Valuable reports on the tobacco disease situation have been received from collaborators in the important tobacco producing states of Virginia and North Carolina. It is hoped that reports from other more northern tobacco states will become available later. According to crop estimates the yield of tobacco will be low this year on account of reduced acreage and poor condition (66.6% as compared with 84.1% at this time last year and 79.1%, the 10-year average).

Wildfire caused by Bacterium tobaccum.

Virginia: Found in only slight amounts and in only occasional fields. Checked by dry weather. Inspection of plant beds showed it to be present in only 8% of the beds as compared with 70% of the beds affected with angular leaf spot. (Fromme, August 1).

North Carolina: Reported in several counties this year, but not in as destructive form as in previous years. (Foster, August 1).

South Carolina: A case of wildfire or angular leaf spot in Williamsburg County was investigated June 14. A severe dry spell just preceding had apparently checked the disease. Specimens were submitted to Drs. Garner and F. A. Wolf, who agreed that the determination could not be made more definite than above. (Ludwig, August 1).

Angular leaf spot caused by Bacterium angulatum.

Virginia: Very slight as yet over the state as a whole. This is attributed to the very dry weather. Only a little rain has fallen in some sections since the crop was set in the field. Inspection of plant beds showed presence in 70% including both those from treated and untreated seed. It was found present to some extent in 50% of the beds where treated seed and new or boiled canvas was used; in 100% of those where treated seed and old, unsterilized canvas was used, and in 90% of the beds where untreated seed and old, unsterilized canvas was used. The severity was greater as a rule in the latter two groups, most of the cases in the first group being trace only. The advantage of seed treatment and plant bed sanitation are quite evident. (Fromme, August 1).

North Carolina: Several severe cases reported in Lee County, and found scattering elsewhere. (Foster, August 1).

Bacterial wilt caused by Bacterium solanacearum

Virginia: Granville wilt reported from Patrick, Pittsylvania, Charlotte, and

Mecklenburg Counties. More complaints than in previous years. This may be due to the fact that farmers are paying more attention to the crop this year than formerly. (Fromme, August 1).

North Carolina: Most destructive tobacco disease, lands often being abandoned because of its infestation with the wilt organism. Common this year on land grown to tobacco for years, especially in Granville, Vance, Durham, and Wake Counties. (Foster, August 1).

Root knot caused by Heterodera radiciola.

North Carolina: More serious this year than in previous years, probably because of the long drouth, making the plants succumb to the infestation. Reported to be worst in Lee and Nash Counties. (Foster, August 1).

South Carolina: Present, damage unknown. (Ludwig, August 1).

Mosaic (cause undetermined).

Virginia: Occurs in about 20% of the fields to some extent. Severe in 1-2% of the fields. More prevalent than I have seen it previously. (Fromme, August 1).

North Carolina: Common but not considered serious in comparison with other tobacco troubles. (Foster, August 1).

South Carolina: Present. Extent of injury unknown. (Ludwig, August 1).

Fertilizer injury - This type of injury has been one of the most serious troubles we have had to contend with this year. In several instances entire fields of over a hundred acres have been practically a total loss. The exact conditions causing the trouble are not fully understood, but in a large number of instances it seems that too heavy applications of a highly available nitrogenous fertilizer tends to cause a firing or spotting of the leaf. (Foster, August 1).

Frenching (cause unknown) - reported from North Carolina. "Very common and destructive this year, in several instances whole fields showing it. Especially common in fields where fertilizer is not used." (Foster, August 1).

Lightning injury - reported from Virginia. "Occurred at Beach, Chesterfield County. Most of plants in circular area about 100 feet in diameter affected. About 50% of affected plants dead and many of the remainder will probably not survive till harvest." (Fromme, August 1).

COTTON

Reduced acreage and rather poor condition is expected to lower the cotton production this year to 8,200,000 bales as compared with 13,400,000 bales of 1920, according to the August 1 estimates of the United States Department of Agriculture.

Reports on disease conditions are not in yet from collaborators in the cotton states, but the following note from J. A. Elliott on the newly described "Phoma" disease is of interest at this time.

Phoma blight caused by Phoma sp.

This recently reported cotton disease (Phytopath. 11: 48. 1921) has been found by Elliott in new localities in Arkansas this year. The following statement and map give an idea of the situation:

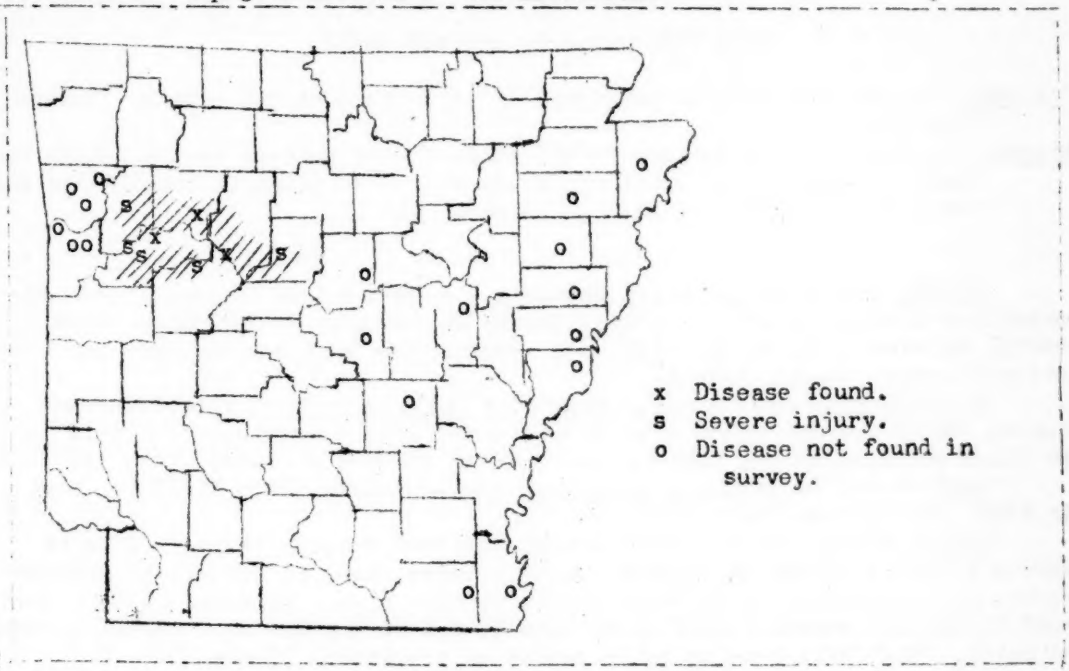

Fig. 1. Distribution of Phoma blight of cotton in Arkansas as determined by surveys up to July 11, 1921.

"The disease so far as we know is limited to the west central part of the state along the Arkansas and Petit Jean River Valleys. It was quite severe in western Conway County in 1915. This was the first known occurrence of the disease.

"Last year, according to reports, the blight was severe in south Franklin, south Logan, and Yell Counties. These reports, I think, are quite authentic. Other reports of damage are rather uncertain, and I imagine are confused with wilt. I did not find the disease this year in any field that had not been in cotton the year previous. This was true on the farms where the disease was severe both this year and last year. The negative reports from the eastern part of the state are not at all conclusive since the season there has been quite dry excepting for a wet period early in the year. The western part of the state received much more rainfall, and conditions were much more favorable for the development of the disease. I rather doubt, however, that the eastern part of the state has ever had a severe attack of this disease."

BEAN

Judging from reports received to date, losses from bean diseases are apparently light, except locally. In Vermont dry weather has prevented the

development of most diseases. The only one reported being stem rot (See also the July 15 and August 1 issues).

Stem rot caused by various fungi.

Vermont: Mr. Gilbert reports considerable in a field at St. Albans. (Lutman, July 15).
Oregon: Present but not serious in the state except perhaps in the hotter sections of eastern and southern Oregon where considerable trouble has been met with in individual places. (Barss, July 1).

Blight caused by Bacterium phaseoli - reported from Oregon. "Cate reports this trouble severe in Jackson County on Kentucky Wonder beans which rarely, he says, come to maturity as a result. One case was observed in Marion County." (Barss, July 1).

Anthracnose caused by Colletotrichum lindemuthianum - reported from Jackson County and the Coast section in Oregon, causing serious loss only in the Coast section, where, however, the acreage is small. (Barss, July 1).

Rust caused by Uromyces appendiculatus - reported from Virginia, West Virginia, and Jackson County, Oregon.

Mosaic (cause undetermined) - reported from Oregon. "Cate reports it general in all sections of Jackson County. Barss finds it general in eastern Oregon, the percentage of infected plants running high. It shows up less than usual in the Willamette Valley up to July 1, but spring has been unusually cool and moist. What will develop later cannot be predicted. (Barss, July 1).

CABBAGE

Temple reports the following diseases on cabbage in Maryland (July 1):

Club root caused by Plasmodiophora brassicae - Picked up, here and there over the state, causing 20% loss to cauliflower growers in western Maryland.

Yellows caused by Fusarium conglutinans - General over the eastern one-half of the state and gradually growing worse. It is, by far, the worst disease of cabbage in Maryland.

Black rot caused by Bacterium campestre - Not much loss from this disease in Maryland.

Black leg caused by Phoma oleracea - About as usual with considerable loss in the trucking sections.

PEA

Blight caused by Ascochyta pisi.

New Jersey: Occasional; no importance. (Cook, July 1).
Delaware: First observed May 21. Very prevalent. More severe on plants weakened by the late frosts than those seeded later. (Manns, July 1).

Maryland: Prevalent and caused more loss than in 1920. Some fields had a loss of as much as 25%. (Temple, July 1).

California: Severe at Pismo; considerable in San Diego County and Los Angeles County; very severe (April 1) in Alameda County. (Milbrath, April 1).

On the San Francisco market I found peas in an unmarketable condition on account of Ascochyta injury. These peas had been grown at Pismo, a new section of 300 acres in San Luis Obispo County. Reports are to the effect that the whole section is affected equally. (Milbrath, April 15 News Notes of the Office of Cotton, Truck, and Forage Crop Disease Investigations, May 7: 5.).

Root rots caused by various organisms.

New Jersey: Abundant throughout the southern part of the state. (Cook, July 1).

Delaware: "Root rot caused by Pythium Debaryanum" was very severe in those fields which have been cropped for a number of years to peas. This root trouble along with the spot disease and late frosts resulted in such poor stands that in many instances the crop was plowed under. (Manns, July 1).

Maryland: Increasing in prevalence and causing considerable loss to the growers of canning-house peas. A limited acreage of late fall or second crop peas is grown here and root rot is very destructive to these. (Temple, July 1).

Downy mildew caused by Peronospora viciae.

Delaware: A trace of this infection was found in one field near Georgetown, Sussex County. (Manns, July 1).

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